

E-Fiber EF500

Needleless electrospinning platform



EF500 E-FIBER NEEDLELESS VERSION

E-Fiber electrospinning system with needleless technology is our innovative and high-throughput product for research and pilot scale industrial production. It is a needleless closed feed electrospinning technology, which assures high productivity and high fiber uniformity. Despite its outstanding performances the system still remains versatile and user-friendly, with a plug & play installation.

E-Fiber EF500 is a fully-customisable electrospinning platform consisting of single or multiple needleless spinneret heads and application-specific rotating collectors and roll-to-roll unit (easily interchangeable), for the industrial pilot scale manufacturing of polymeric-nanofibrous matrices. This device creates a powerful and highly versatile technique for the fabrication of various fibrous architectures with controlled fibre diameter and orientation. Its technology minimises influence on the electrospinning process.

SKE needleless technology is highly indicated for synthetic as well as natural and bio polymers.

The equipment is user-friendly and safe thanks to the automatic safety devices that protect the operator.



E-Fiber EF500 version is a scale-up of the traditional electrospinning technology, and allows researchers to easily scale or transfer their applications to an industrial scale of manufacturing.

The EF500 version includes all the necessary instrumentation for a complete and ready to use setup, to rapidly begin your electrospinning sessions.

E-Fiber EF500 is equipped with an infusion system for the polymeric solution to ensure the continuous production of electrospun matrices. The continuous solution feeding system, driven by a peristaltic pump, can host reservoir bottles up to 5 Litres, suitable for a long time running session and roll-to-roll collector.

The system is installed in an Aluminum/Plastic cabinet equipped with extraction fan and includes a LED lighting system.



E-Fiber EF500 system is equipped with an internal module in order to control environmental parameters on your working area, with a real time monitoring. This module controls temperature and humidity of the air of the working area, and keeps it constant during your electrospinning session. You can directly manage your setpoint of °C and RH% on the control user interface.

Parameters:

working Range: Tenv/+35°C (+/- 1°C) – 20/60 % RH (+/- 5% RH)

Environmental working range: +18/+25°C –40/80%RH

[+15/+45°C with reduced performance],

Heating power: 2,8 kW



A motor-driven bidirectional roll-to-roll collector is installed and used for continuous electrospinning on a reel fabric or substrate. Suitable for pilot scale of manufacturing: nanofiber coating and membranes for hi performances filtering applications, medical devices, technical textiles etc. Electronic feedback system for a precise control over speed and tension, in order to grant highly reproducible batch-to-batch conditions.



STANDARD TECHNICAL DATA

Main Features

System	E-Fiber
Model	EF500
Spinning heads	up to 2
Technology	Closed feed needleless (needle free)
Effective width of nanofibers	up to 500mm
Spinning distance	up to 300 mm
Operating mode	Batch or continuous
Spinning voltage	up to 120 kV
Power supply	220V-110V AC 50-60 Hz, single phase
Power	up to 3800 W (with climate control unit)
Dimensions	1500 mm x 850 mm x 2200 mm
Weight	~300 Kg

High-voltage power supply

Voltage	±60 kV
Power	120 W (60 W x 2)

Arc and Short-circuit protection Yes

Spinneret

Spinneret type	SKE static spinneret head
Spinneret range length	20÷60 cm
Material	PTFE, aluminum, Stainless Steel

Rotating Collector

Rotating collector speed	50÷600 rpm
Standard collector diameter range	200 mm
Standard collector maximum length	up to 550 mm
Material	stainless steel and aluminum

Roll-to-roll Collector

Maximum Reel width	550mm
Maximum Speed	up to 50 cm/min (720m/day).
Type	Unidirectional or Bidirectional

Safety

Interlock system	Safety door locks
Emergency button switch	Safety shut off button
Fume extraction	Enclosure with extraction fan extracted volume > 200 m ³ /h (customization available)
External fume extraction connection	100 to 150 mm (customization available)
Short circuit and arc protection	On board
In Force legislations	LVD 2014/35/UE 2006/42/CE Meets all CE requirements CSA certification on request

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